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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/221,291	12/23/1998	MARTIN H. GRAHAM	003921.P005	4813

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Edwin H. Taylor
Blakely, Sokoloff, Taylor, & Zafman LLP
12400 Wilshire Boulevard
Seventh Floor
Los Angeles, CA 90025

EXAMINER

BURD, KEVIN MICHAEL

ART UNIT	PAPER NUMBER
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2611

MAIL DATE	DELIVERY MODE
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01/25/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/221,291

Applicant(s)

GRAHAM, MARTIN H.

Examiner

Kevin M. Burd

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 January 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 19-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

1. This office action, in response to the remarks filed 1/11/2008, is a final office action.

Response to Arguments

2. Applicant's arguments filed 1/11/2008 have been fully considered but they are not persuasive.

Applicant states the PPM encoding of Devon (US 5,692,127) is different that the present invention. Applicant also states Devon does not teach measuring the time between pulses. Claim 19 recites "waiting a first period of time following the second portion of the first biphasic pulse during which the period of time no amplitude dependent bits are encoding, the duration of the first period of time being selected to represent a first plurality of data bits". Devon discloses "a receiving device decodes the PPM signals by measuring the time between each pulse received and the previous received pulse." in column 6, lines 5-7.

Applicant states Omura et al (US 5,157,686) does not teach the repeating alternating of the biphasic pulses of the present invention. Applicant states the biphasic pulses of the prior art do not alternate. However, Omura specifically discloses the alternating of biphasic pulses in the Manchester encoded bits of the example shown in figure 2.

For these reasons and the reasons stated in the previous office action, the rejections of the claims are maintained and stated below.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 19-22, 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fullerton et al (US 5,677,927) in view of Omura et al (US 5,157,686) further in view of Devon (US 5,692,127).

Regarding claims 19 and 25, Fullerton discloses a method of encoding data bits for transmission. In figure 10, an information source 1018 outputs data bits to a sub-carrier generator and modulator 1022. Manchester encoding of the digital data produces a digital modulated sub-carrier signal 1024. The sub-carrier time modulator 1016 uses the Manchester encoded data to pulse position modulate the coded timing signal 1014 (column 14, lines 44-57). Column 4, lines 1-10 also discloses the encoding data bits for transmission using Manchester encoding and pulse position modulation (PPM). Fullerton does not disclose the specifics of the Manchester encoding. Omura discloses how data is Manchester encoded and discloses a typical data sequence that is Manchester encoded. Figure 2 discloses a data sequence 0110101 and the corresponding Manchester encoded bits. As shown in figure 2, a first row of a data bit sequence is shown comprising bits as 0110101. Also shown below each data bit are Manchester encoded bits. Each "0" bit of the data bit sequence is encoded as "01" Manchester encoded bit, and each "1" bit of the data bit sequence is encoded as a "10"

Manchester encoded bit (column 7, lines 10-21). Manchester encoding is a phase encoding where each bit is encoded by a positive 90-degree phase transaction, or a negative 90-degree phase transition. Manchester code is sometimes known as a biphasic code. Therefore, the Manchester encoded data in Omura discloses a first biphasic pulse having a first portion of a first polarity (1) followed by a second portion of a second polarity (0). After waiting a first period of time (in this case zero second), a second biphasic pulse having a third portion of the second polarity (0) followed by a fourth portion of the first polarity (1) is generated. After waiting a second period of time (zero seconds), another biphasic pulse is generated having a first portion of a first polarity (1) followed by a second portion of a second polarity (0). After waiting another period of time (in this case zero second), an additional biphasic pulse having a third portion of the second polarity (0) followed by a fourth portion of the first polarity (1) is generated. The sequence of 10101 is generated in Manchester coding and shown in figure 2. It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the encoding of data according to Manchester encoding and transmit data as stated in Omura into the Manchester and PPM encoding system and method of Fullerton. Omura further describes how data is Manchester encoded in any Manchester encoding system. Though the combination of Fullerton and Omura discloses using Manchester encoding and PPM, the combination does not disclose the specifics of the pulse position modulation. Devon discloses transmitting a pulse to represent a plurality of data bits as shown in figure 4. A first position of a pulse represents a "00". The pulse in a second position represents a "01". The pulse in a third

position represents a "10". The pulse in a fourth position represents an "11". The pulse position modulation shown in figure 4 shows how data can be added to times when no data is being transmitted to increase the capacity of a system. More data can be sent that was sent previously. Figure 4 shows multiple bits being sent using PPM. It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the method of encoding multiple bits using pulse position modulation as shown by Devon into the method and system of the combination of Fullerton and Omura for the reasons stated above. The combination of Fullerton and Omura already discloses using PPM.

Regarding claim 20, the biphasic pulse has no DC component since the positive amplitude is equal to the negative amplitude.

Regarding claim 21, the combination discloses transmitting bits. The bits will be transmitted as pulses. The pulses will have an amplitude and pulse width.

Regarding claim 22, the combination discloses transmitting bits. The bits will be transmitted as pulses. One amplitude represents a "1" bit while a second amplitude represents a "0" bit.

Regarding claim 24, the combination of Fullerton, Omura and Devon discloses a method for encoding a signal above. The combination does not disclose the transmission occurs over a twisted wire pair. However, the combination discloses the transmission occurs in a system with minimal interference. It would have been obvious for one of ordinary skill in the art at the time of the invention transmit the signals

generated by the combination in any transmission system that allows the information to be received at the desired location free of interference.

4. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fullerton et al (US 5,677,927) in view of Omura et al (US 5,157,686) further in view of Devon (US 5,692,127) further in view of Pernyeszi (US 5,969,547).

Regarding claim 23, the combination of Fullerton, Omura and Devon discloses a method for encoding a signal stated in paragraph 3. The combination does not disclose the pulse width of each of the pulses represents at least one bit. Pernyeszi discloses pulse widths carry the information with a pulse's width representing a digital value (column 1, lines 17-25). It would have been obvious for one of ordinary skill in the art at the time of the invention to incorporate Pernyeszi's method of pulse width encoding data into the method of the combination of Fullerton, Omura and Devon to transmit more information than either system is capable alone. Information can be transmitted over less time and the transmitter will consume less power due to the limited transmission time.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M. Burd whose telephone number is (571) 272-3008. The examiner can normally be reached on Monday - Friday 9 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David C. Payne can be reached on (571) 272-3024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Application/Control Number:
09/221,291
Art Unit: 2611

Page 8

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



KEVIN BURD
PRIMARY EXAMINER
Kevin M. Burd
1/17/2008